

WHAT IS CLAIMED IS:

1. A directly motor-driven structure of a sewing machine, the sewing machine comprising:

(A) an upper driving shaft mounted on upper side of a housing of the sewing machine for driving an upper stitching needle;

(B) a lower driving shaft mounted on lower side of the housing for driving a lower stitching needle; and

(C) a driving motor for driving the upper and lower driving shafts, making the upper and lower stitching needles perform sewing operation;

the directly motor-driven structure of a sewing machine comprising:

(a) a middle rotary shaft pivotally mounted in a middle section of the housing between the upper and lower driving shafts;

(b) a first transmission mechanism connected between the lower driving shaft and the middle rotary shaft to drivingly rotatably connect the lower driving shaft with the middle rotary shaft, the first transmission mechanism being spaced from the lower stitching needle by a first length; and

(c) a second transmission mechanism connected between the upper driving shaft and the middle rotary shaft to drivingly rotatably connect the upper driving shaft with the middle rotary shaft, the second transmission mechanism being spaced from the upper stitching needle by a second length, the second length being smaller than the first length, whereby the sewing machine is formed with a recessed installation space adjacent to the second transmission mechanism, the driving

motor being installed in the recessed installation space and directly fixedly connected with the upper driving shaft.

2. The directly motor-driven structure of the sewing machine as claimed in claim 1, wherein the first transmission mechanism includes:

(a) a first transmission wheel fixedly mounted on the lower driving shaft;

(b) a second transmission wheel fixedly mounted on the middle rotary shaft; and

(c) a first flexible transmission member wound on the first and second transmission wheels, whereby the lower driving shaft is drivingly rotatably connected with the middle rotary shaft.

3. The directly motor-driven structure of the sewing machine as claimed in claim 1, wherein the second transmission mechanism includes:

(a) a third transmission wheel fixedly mounted on the upper driving shaft;

(b) a fourth transmission wheel fixedly mounted on the middle rotary shaft; and

(c) a second flexible transmission member wound on the third and fourth transmission wheels, whereby the upper driving shaft is drivingly rotatably connected with the middle rotary shaft.

4. The directly motor-driven structure of the sewing machine as claimed in claim 2, wherein the first and second transmission wheels are belt wheels the rims of which are toothed and first and second flexible transmission members are positive drive belts having multiple teeth on inner circumferences.

5. The directly motor-driven structure of the sewing machine as claimed in claim 3, wherein the third and fourth transmission wheels are belt wheels the rims of which are toothed and first and second flexible transmission members are positive drive belts having multiple teeth on inner circumferences.